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2,986,544

PLASTIC COMPOSITION COMPRISING A MIXTURE OF EMULSIONS OF POLYVINYL ACETATE AND STYRENE-BUTADIENE COPOLYMER

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No Drawing. Filed Oct. 19, 1956, Ser. No. 616,931

2 Claims. (Cl. 260—29.7)

The present invention relates to a composition and more particularly to a basic mixture for formulating a cementitious material which can permanently tape and joint seal tempered and untempered hardboard, plywood, asbestos board, fiber board, compressed fiber board, gypsum board and the like.

An object of this invention is to provide a mixture of synthetic latices having a novel, instant and stable change in viscosity when combined.

Heretofore cementitious materials for use as joint fillers and sealers for board joints, spackling compounds for repairing cracks, caulking compounds for all forms of constructions both interior and exterior work, pipe coverings, wood fillers and other related uses have had some or all of the following deficiencies:

- (1) Putrefaction, odor, mold.
- (2) Shrinkage.
- (3) Delayed shrinkage, causing joint cave in.
- (4) Joint ridging and beading.
- (5) Weak non-permanent joints.
- (6) Cement popping off nail heads.
- (7) Several coats of cement over tape required.
- (8) Edge cracking of finished joints.
- (9) Cement will burn through paint, thus a special primer is needed.

(10) Drying time from approximate 24—48 hours which is undesirable as this long period delays the job.

Accordingly, it is an object of this invention to provide a novel mixture serving as the basic portion for formulation of a cementitious material, which eliminates the above-mentioned deficiencies.

The latices or emulsions in the novel combinations hereinafter described are an acidic synthetic emulsion (hereinafter referred to as latex or emulsion #1) and a basic synthetic emulsion (hereinafter referred to as latex or emulsion #2). They must be air drying to form a continuous or semi-continuous film which is normally solid at ordinary temperatures. The latices must also have the following properties:

- (1) Water resistant when dry.
- (2) Stable enough to be useable.
- (3) Film forming characteristics.
- (4) Relatively non-toxic.

Another object of the invention is to provide a cementitious material applicable by standard or customary tools, such as trowels, putty knives or the like, the same being free of the foregoing deficiencies of such prior material and having very strong and durable adhesive properties unaffected by normal ambient conditions, such as moisture, heat and cold.

Another object is to provide a composition formed of ingredients which, when mixed or mingled together, will have good storage life when kept in sealed containers.

Another object is to provide a cementitious mixture that will set hard within a relatively short period of time and with a minimum of shrinkage.

Another object is to provide a cementitious mixture, which bonds efficiently and effectively to various types

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of joining tapes, and which adheres to the surface applied and is readily adaptable to be painted or coated without changing its physical or chemical properties with primer or the like after it is applied.

Still another object is to provide a novel combination of synthetic emulsions for making a cementitious mixture or the like including, for example, a synthetic latex or emulsion of synthetic resin or polymer having the properties of being mixable with various predetermined quantities of selected fillers. The property of non-precipitation or coagulation of the emulsion, except in very small particles; the property being stable in storage when mixed with fillers and modifiers; the property of forming with fillers and modifiers a hard or semi-hard material by loss of water or the like through evaporation or absorption into the medium on which it is applied; and having the property of formulation with fillers and/or modifiers to provide a cementitious mixture which is trowellable and workable during the application period and does not become hard prematurely.

A further object is to provide a mixture of latices or emulsions with fillers, such as will not absorb large amounts of water; are readily finely divided, such fillers usually being inorganic, and the filler proportions being regulated so as not to precipitate the latex or emulsion or mixture of latices.

A further object is to provide in the mixture of latices a filler having a surface area, such that relatively large amounts can be added to the latex or emulsion, to thereby maintain high solids content in the resulting mixture.

Such fillers, for example, may be marble flour, calcium carbonate, silica flour, titanium dioxide, clay, calcium sulfate, barium sulfate and the like.

A further object is to provide a cementitious material which does not require sanding after application to a surface.

A still additional object and feature is to provide a cementitious mixture having a modifier in the mixture with or without a plasticizer when desirable to obtain a final hardened product susceptible to sanding, such plasticizer when used may be for example—aro-chlor, dibutylphthalate, tricresyl phosphate and others.

Yet a further object is to provide a cementitious mixture with a modifier having the property of imparting false body (thixotropy) so that the material will stay where placed, that is will not run, droop or flow in any degree.

A modifier having such properties for example may include, carboxymethyl cellulose, ammonium salts of acrylic acid polymers and others.

Another object is to provide a composition of matter consisting of synthetic resin latices one of which is adapted for use as a modifier for the first, thereby modifying the viscosity, the tack of the resulting adhesive, the shrinkage and the hardness, thereby requiring only a non-hygroscopic filler which does not swell from moisture, adversely gel or precipitate either of the two latices of the composition.

A further object is to provide a novel method of formulation for a cementitious material comprised of synthetic latices and a filler, whereby one latex acts as a thickening agent for the other latex, provides a false body and reduced tack. This phenomena is not clearly understood but a possible explanation is that the relatively smaller particles of the second latex in effect act as small ball bearings between the relatively larger particles of the first latex and thus prevent the latter from sticking or fusing together.

Still a further object is to provide a composition of acid stabilized latex, such as a polyvinyl acetate emulsion in combination with a suitable alkaline stabilized latex, which when combined develops instantly into a highly viscous or gel-like state adapted to become a basic com-